

**UCSC****University of Colombo, Sri Lanka***University of Colombo School of Computing***DEGREE OF BACHELOR OF INFORMATION TECHNOLOGY  
(EXTERNAL)**Academic Year 2024 — 3<sup>rd</sup> Year Examination — Semester 6**IT6306 — Mobile Application Development***Structured Question Paper*  
(2 Hours)**To be completed by the candidate****Index Number**

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**Important Instructions**

- The duration of the paper is **2 hours**.
- The medium of instructions and questions is English. Students should answer in the medium of English language only.
- This paper has **4 questions** on **11 pages**. Answer **all** questions.
- All questions carry **equal** marks.
- Write your answers **only on the space provided** on this question paper.
- Do not tear off any part of this question paper. Under no circumstances may this paper (or any part of this paper), used or unused, be removed from the Examination Hall by a candidate.
- Note that questions appear on both sides of the paper. If a page or part of a page is not printed, please inform the supervisor/invigilator immediately.
- Any electronic device capable of storing and retrieving text, including electronic dictionaries, smartwatches, and mobile phones, is not allowed.
- Calculators are **not allowed**.
- *All Rights Reserved*. This question paper can NOT be used without proper permission from the University of Colombo School of Computing.

**To be completed by  
the examiners**

<b>1</b>	
<b>2</b>	
<b>3</b>	
<b>4</b>	
<b>Total</b>	

01.

(25 marks)

- (a) “In the smartphone era mobile phones started using styluses for input.” Briefly explain what a **stylus** is and how it facilitates input.

(4 marks)

- (b) Name **four (04)** examples for mobile application development frameworks.

(4 marks)

- (c) Briefly explain the need of a **mobile strategy** when initiating a mobile application project.

(5 marks)

- (d) Write a brief note of **one (01) mobile operating system** that you know of **with four (04)** points such as:

*Name, Manufacturer, Source type and Popularity*

**(4 marks)**

- (e) Write a brief description of **two (02) layers of Android Platform Architecture**, stating their relative positions and functions in Android's layered architecture.

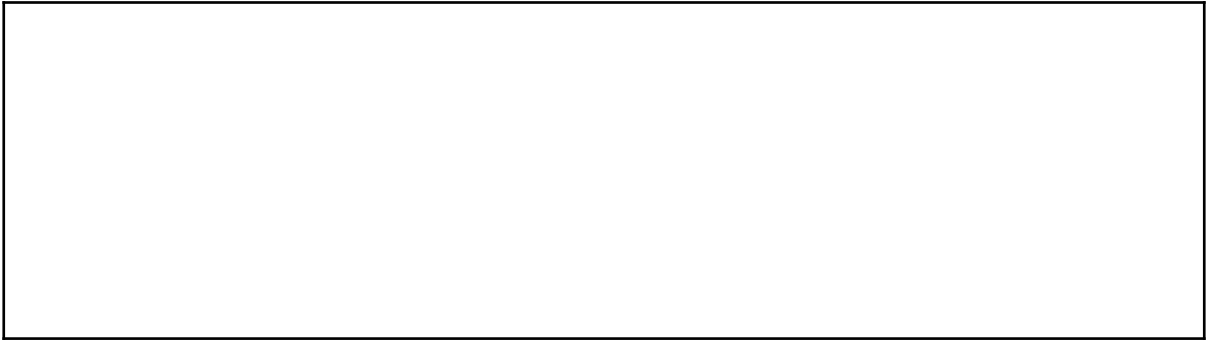
**(8 marks)**

02.

(25 marks)

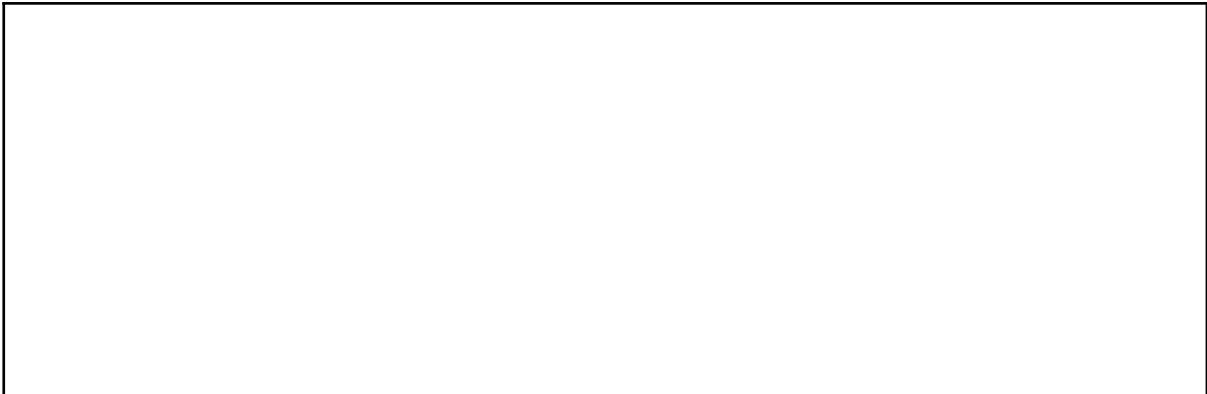
- (a) Name **five (05)** of the **elements** of the **Mobile Design** (in any order).

(5 marks)



- (b) For **any three (03)** of the above mentioned elements in **Question 02. a)**, write short notes to describe each of them.

(6 marks)



- (c) What is meant by a “**best practice**” in mobile design? Why would a designer **may avoid** adhering to a particular best practice in their mobile design?

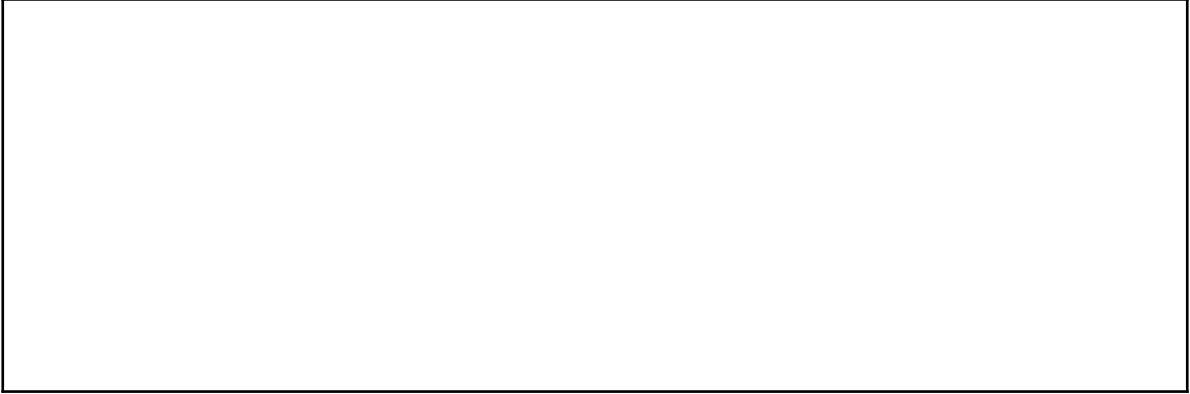
**(6 marks)**

- (d) What is **Figma**? Write a short note with up to **five (05)** points to describe it.

**(5 marks)**

(e) Briefly explain what is meant by “**user-centric experiences**” in mobile design.

**(3 marks)**



03.

**(25 marks)**

(a) Mobile Application Development has its unique challenges compared to desktop and web platforms. Selecting any **three (03)** of the following **four (04)** aspects, briefly explain why mobile application development is challenging.

- i. Multiple screen sizes and resolutions
- ii. Performance
- iii. Security
- iv. Compatibility

**(6 marks)**

- (b) Briefly explain the **problem of ANR** that occurs in Android runtime.

**(3 marks)**

- (c) Draw a transition diagram for an Activity in the android platform.

You must clearly indicate the following to **obtain the full marks**. *Starting state, Ending state, Intermediate states, Arrows for transition, Callback methods invoked between the transitions.*

**( 16 marks)**



04.

**(25 marks)**

(a) Write short notes to the following questions on Android architecture components.

(i) ViewModel

**(3 marks)**

(ii) DataRepository

**(3 marks)**

(iii) Entity in Room library

**(3 marks)**

(iv) DAO in Room library

**(3 marks)**

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(v) Database in Room library

**(3 marks)**

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(vi) Singleton instance of an object

**(3 marks)**

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- (b) Name **three (03)** methods / approaches that can be used to release an Android consumer mobile application to its potential users.

**(3 marks)**

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- (c) Name **four (04) monetization strategies** for an app based on Android.

**(4 marks)**

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